Oral myiasis

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Abstract

Myiasis is a relatively rare condition arising from the invasion of body tissues or cavities of living animals or humans by maggots or larvae of certain species of flies. It is an uncommon clinical condition, being more frequent in underdeveloped countries and hot climate regions, and is associated with poor hygiene, suppurative oral lesions; alcoholism and senility. Its diagnosis is made basically by the presence of larvae. The present article reports a case of oral myiasis involving 20 larvae in a patient with neurological deficiency.

Keywords: Myiasis, larvae, parasitic infection

Introduction

Myiasis is a term derived from the Greek word "myia", meaning invasion of vital tissue of humans or other mammals by fly larvae.[1-5] The term "myiasis" was coined for this distinct clinical condition by Reverend F.W. Hope in 1940, and since then, it has been used to designate infestation by the larvae.[6-8] Myiasis was defined by Zumpt as the infestation of live human and vertebrate animals by dipterous larva, which at least for a certain period feed on host's dead or living tissue, liquid body substances or ingested food.[7] Oral myiasis was first described by Laurence in 1909.[7,8] Almost 86 different species of flies have been reported to cause human myiasis.[6] A condition similar to myiasis was considered by the Hindu mythology as "God's" punishment to sinners.

Case Report

A 22-year-old male patient reported to the Outpatient Department of Oral Medicine with a primary complaint of worms in the mouth since 4 days. The medical history revealed that the patient was affected by cerebral palsy since birth [Figure 1]. The patient has been bedridden all his life. On general examination, the patient was found to be conscious and co-operative. Clinical oral examination revealed an area of ulceration in the anterior palatal aspect of the mouth,

Figure 1: External profile of the patient

Figure 2: Intraoral photograph showing palatal swelling

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accompanied by erythema, redness and bleeding on probing [Figure 2]. Closer observation showed multiple worm-like motile organisms within the ulcerated area.

A total of 20 larvae were grasped gently and taken out with the help of tweezers after application of turpentine oil. Out of these, only three were viable. These were then taken to Department of Parasitology where they were identified as larvae of the common housefly. The ulcerated area was debrided and well irrigated with saline. The follow-up of the case showed normal healing of the area. Histopathological examination of the incisional biopsy specimen revealed dense inflammatory infiltrate comprising chiefly lymphocytes in the connective tissue stroma. Many endothelial lined blood capillaries were also observed.

Discussion

This parasitic infestation frequently occurs in rural areas, infecting livestock and pets such as dogs and cats.[1] After the fly lays eggs in the dead and decaying tissues, the larvae hatch in about 8–10 hours, soon after which they burrow into the surrounding tissues; and in this stage, there will be tissue inflammation ensuing discomfort, which makes the patient consult a doctor.[1,6,9] This burrowing may cause separation of the mucoperiosteum from the bone. The opening of the burrow is usually kept patent with induration of the marginal tissues, and is raised forming a dome-shaped "warble".[6] They position their heads down so that the posterior spiracles could become exposed to the open air to make respiration possible. After the young larvae penetrate the skin of the host, they take 8–12 days to develop into the prepupal stage and then leave the host to pupate. While in human skin, the larva grows through three different larval stages. The most common anatomic sites for myiasis are the nose, eye, lung, ear, anus, vagina and, more rarely, the mouth. Incidence of oral myiasis as compared to that of cutaneous myiasis is less as the oral tissues are not permanently exposed to the external environment. It has been reported among epilepsy patients with lacerated lips following a seizure, incompetent lips and thumb sucking habits, advanced periodontal disease, at tooth extraction sites and patients with tetanus with mouth propped open to maintain their airway.[2,7] The stage of larvae lasts for 6–8 days during which they are parasitic to human beings. The larvae have backward directed segmental hooks with which they anchor themselves to the surrounding tissue. They are photophobic and tend to hide deep into the tissues for a suitable niche to develop into pupa. This unusual type of gingival myiasis may occur in an unconscious or sleeping person when the mouth is left open. Periodontal disease of the oral cavity, with pockets, provides a perfect environment for the eggs to hatch and for the larvae to grow in the warm and moist conditions.[4,10]

Histological examination of tissue has been reported to show evidence of dense inflammation, dystrophic calcification, and foreign bodies compatible with features of abscess.

The standard treatment of myiasis is manual removal with hemostatic or clinical pincers, associated with or without the administration of topical asphyxiation drugs, which forces the larvae to come out.[2,3,7] It is important to remove all the larvae, otherwise the cavity does not heal properly and can also become chronically infected. Various substances (ether, chloroform, olive oil, calomel, iodoform, phenol mixture) have been recommended; however, they were found to produce controversial results.[2,7] Larval rupture should be avoided. Ivermectin, a semi-synthetic macrolide antibiotic, is found safe for human use as proposed by Shinohara *et al*. and Osorio *et al*.[1,2,5,7] In some cases, it shows multiple site involvement. In such cases, semi-synthetic chemotherapy is indicated. Secondary bacterial infection along the surrounding skin should be treated with antibiotics. Patient's diet should be supplemented with multivitamins, mineral and nutrients.

Conclusion

To conclude, myiasis affects mostly the uncovered body areas where oviposition is easily carried out. It frequently affects low socioeconomic level individuals with poor hygiene habits and unhealthy patients with psychiatric disorders, diabetics, and immunocompromised patients. Undoubtedly, preventive approach measures, including basic health care, hygiene, access to primary health service, and safe water and drainage, are fundamental to prevent cases such as this one.

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